RHOPALUS (*BRACHYCARENUS*) *TIGRINUS* (HEMIPTERA: RHOPALIDAE): FIRST WESTERN U.S. RECORDS OF A EURASIAN SCENTLESS PLANT BUG[1]

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ABSTRACT: *Rhopalus* (*Brachycarenus*) *tigrinus*, a Palearctic rhopalid known previously in North America from Maryland, Michigan, New Jersey, New York, and Pennsylvania, is newly recorded from six states in the western United States: Arizona, California, Colorado, Nebraska, Oregon, and Wyoming. This specialist on crucifers (Brassicaceae) was collected along highways and railroads, mainly from naturalized Eurasian plants such as flixweed (*Descurainia sophia*), perennial peppergrass (*Lepidium latifolium*), short-pod mustard (*Hirschfeldia incana*), and tumble mustard (*Sisymbrium altissimum*).

Rhopalus (*Brachycarenus*) *tigrinus* (Schilling) is a widespread Eurasian rhopalid that develops mainly on low-growing crucifers (Brassicaceae) whose seeds ripen early (Aukema 1993, Stehlík and Vavřínová 1995). The first Nearctic record was New Jersey (Hoebeke 1977), with subsequent collections from Maryland, Michigan, New York, and Pennsylvania (Hoebeke and Wheeler 1982; Wheeler 1984, 1992; Wheeler and Hoebeke 1988) (Fig. 1). Diagnostic characters, descriptions of the immature stages, and life-history information for this adventive rhopalid were provided by Hoebeke and Wheeler (1982), Wheeler (1984), and Wheeler and Hoebeke (1988).

Here, we give the first records of *R. tigrinus* from the western United States (Fig. 2). The following records are based on material submitted to E.R. Hoebeke (ERH) for identification or donated to the Cornell University Insect Collection (CUIC); material submitted for identification through the USDA's Systematic Entomology Laboratory, Beltsville, MD, and determined by T.J. Henry; and specimens collected by A.G. Wheeler (AGW) and T.J. Henry. Numbers of adults collected are in parentheses. Voucher specimens have been deposited in the CUIC and National Museum of Natural History (USNM), Smithsonian Institution, Washington, D.C.

New U.S. records (Fig. 2): ARIZONA: Pima Co., Tuscon, Tanque Verde, 22 Feb. 1992, G.C. Eickwort (1). CALIFORNIA: Colusa Co., Williams, 9 Aug. 1998, AGW, ex *Lepidium latifolium* (5); Lake Co., Middletown, 10 Aug. 1998, AGW, ex *Hirschfeldia incana* (2); Mariposa Co., Lake McClure, 21 June 1998 (2) and Red Hill Rec. Area, June 1997 (2), W.A. Wall, ex *Streptanthus polygaloides*; Merced Co., Santa Nella (37°05'N, 121°00'W), 14 Aug. 1998, AGW & T.J. Henry, ex crucifers; San Benito Co., Rt. 156, 7.5 mi. N. of Hollister (36°57'N, 121°23'W), 14 Aug. 1998, AGW & T.J. Henry (1); San Joaquin Co., Rough and Ready Island (37°96'N, 121°36'W) (1) and Stockton (37°58'N, 121°18'W) (4), 12 Aug. 1998, AGW & T.J. Henry, ex *Raphanus* sp.; Santa

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Clara Co., Rt. 152, W. of Pacheco Pass (37°03'N, 121°13'W), 14 Aug. 1998, AGW & T.J. Henry, ex *Hirschfeldia incana* (2); Stanislaus Co., Westley (37°32'N, 121°15'W), 14 Aug. 1998, AGW & T.J. Henry, ex *Hirschfeldia incana* (4); Tehama Co., Red Bluff, Samson Slough, 29 Apr.-9 May 1984, D.S. Chandler, sweeping vetch (1); Yolo Co., Rt. 16, 0.8 km NNW. of Guinde, 10 Aug. 1998, AGW, ex *Hirschfeldia incana* (12) and Rd. 99W, 0.8 km S. of Zamora, 9 Aug. 1998, AGW, ex *Lepidium latifolium* (6). COLORADO: Douglas Co., Castle Rock, 21-22 Aug. 1994, M.H. Evans, sweeping mixed forbs (30); Sedgwick Co., Julesburg, 14 June 1998, AGW, ex *Sisymbrium altissimum* (1). NEBRASKA: Cheyenne Co., Sidney, 14 June 1998, AGW, ex *Descurainia sophia* (2); Dawes Co., Rt. 20, 0.8 km E. of Crawford, 17 June 1998, AGW, ex *Sisymbrium altissimum* (2); Deuel Co., Big Springs, 14 June 1998, AGW, ex *Descurainia sophia* (1) and Chappell, 14 June 1998, AGW, sweeping crucifers (1); Garden Co., Oshkosh, 18 June 1998, AGW, ex *Descurainia sophia* (1); Keith Co., Cedar Point Biological Station, 13 km N. of Ogallala, 12 June 1998, AGW, ex inflorescence of *Conium maculatum* (1) and Ogallala, 9-10 June 1998, AGW, ex *Descurainia sophia* (15) and *Sisymbrium altissimum* (3); Kimball Co., Kimball, 19 June 1998, AGW, ex *Descurainia sophia* and *Sisymbrium altissimum* (3); Lincoln Co., Hershey, 18 June 1998, AGW, ex *Descurainia sophia* (1); Morrill Co., Broadwater, 16 June 1998, AGW, sweeping weeds (1); Perkins Co., Rt. 23, 4 mi. E. of Madrid (40°51'N, 101°27"W), 21 Aug. 1998, AGW & T.J. Henry, ex *Sisymbrium altissimum* (1); Sioux Co., Rt. 29, 18 km N. of Mitchell, 17 June 1998, AGW, ex *Sisymbrium altissimum* (6). OREGON: Harney Co., Steens Mtn., Pike Creek (42°34'9"N, 118°32'8"W; 1,555 m), 10 May 1996 (1), 22 June 1996 (1), 7 June 1997 (1), J.D. McIver, ex *Lupinus argenteus*. WYOMING: Goshen Co., Torrington, 17 June 1998, AGW, ex *Descurainia sophia* (4); Laramie Co., Pine Bluffs, 19 June 1998, AGW, ex *Descurainia sophia* (6).

Collections of *R. tigrinus* in the western United States range in elevation from sea level in California's San Joaquin Valley (Rough and Ready Island) to more than 1,500 m above sea level in Oregon. Surveys in the western states were most extensive in Nebraska, where crucifers were sampled along railroads and highways. This rhopalid was found at all six sites sampled near the Union Pacific Railroad and Interstate Highway 80, from Kimball in the southwestern part of the panhandle east to Hershey (about 265 km) in west-central Nebraska. It was not found at four sites near Rt. 80 east of Hershey (North Platte to Cozad). Adults were found sporadically (4 of ca. 10 sites) north of Rt. 80 in the panhandle and were present near Crawford in the northwest, about 210 km north of the collection site at Kimball. In Nebraska, adults were collected mainly on the naturalized crucifers *Descurainia sophia* (L.) Webb ex Prantl and *Sisymbrium altissimum* L. Nymphs, present only at Big Springs and Sidney, were observed on *D. sophia*.

In California, *R. tigrinus* was found mainly in the Central Valley (with a few records from the eastern portion of the South Coast Ranges and Sierra Nevada foothills) from Tehama County in the north to San Benito County in the south, a distance of about 370 km. The late-season (August) host plants were perennial peppergrass (*Lepidium latifolium* L.) and short-pod mustard (*Hirschfeldia incana* (L.) Lag.-Foss.), which are both naturalized Old World crucifers.

The importation of nursery stock or other plant material likely was responsible for this rhopalid's unintentional introduction into North America. Once *R. tigrinus* became established, its spread might have been aided by the railroad

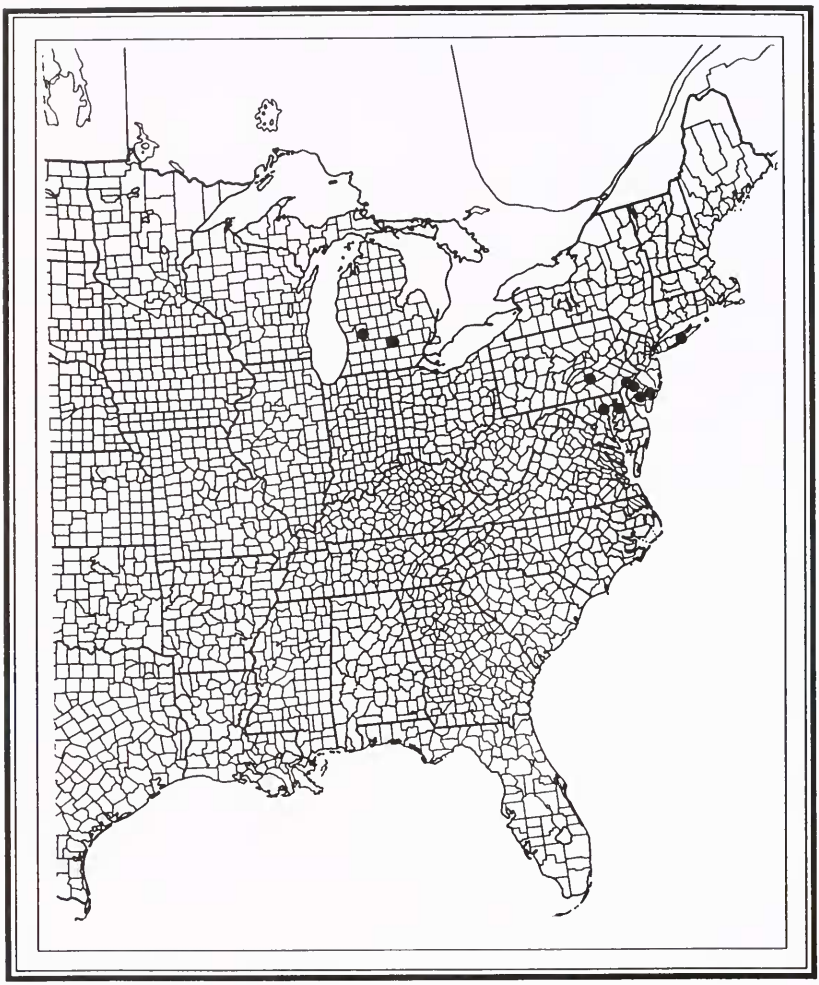

Figure 1. Known distribution of *Rhopalus* (*Brachycarenus*) *tigrinus* in the eastern United States, based on examined specimens (dots). Note: The record from Kent Co., Michigan (Wyoming, 11 August 1995, E.R. Hoebeke, ex *Lepidium* sp., 2 adults) represents unpublished data.

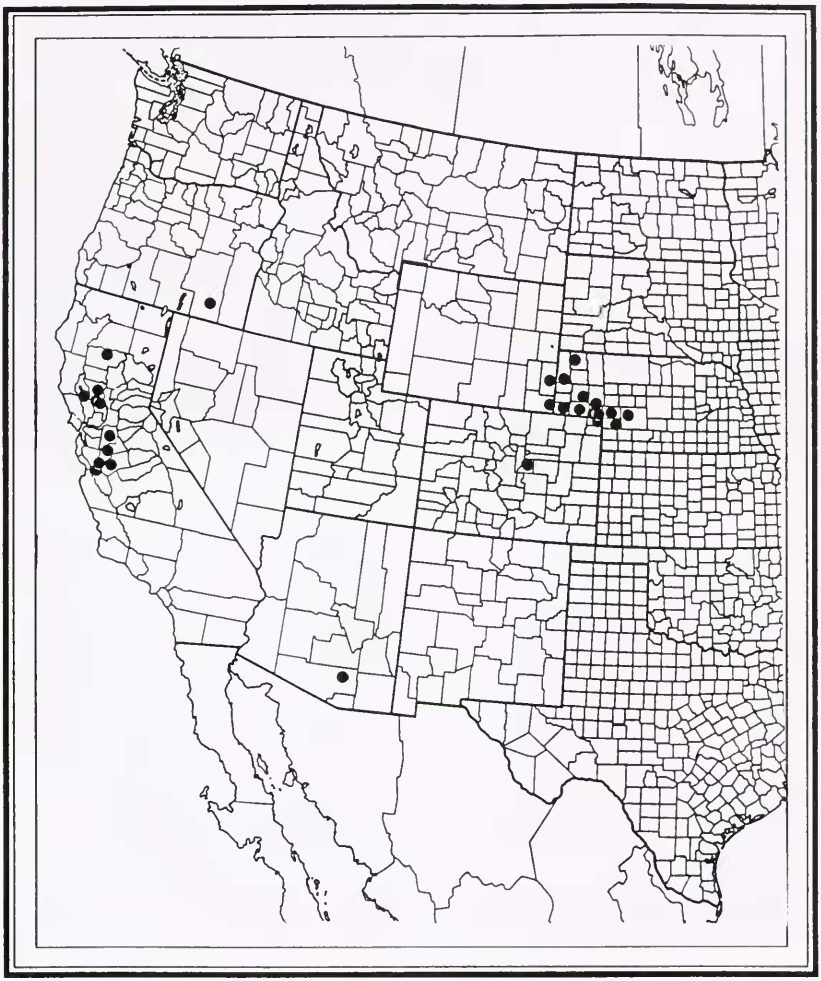

Figure 2. Known distribution of *Rhopalus* (*Brachycarenus*) *tigrinus* in the western United States, based on examined specimens (dots) reported herein.

(Hoebeke and Wheeler 1982), although we have no evidence that individuals are transported in or on railroad cars. Its occurrence in railroad yards and along rights-of-way in the eastern and western United States might simply reflect the abundance of preferred Old World crucifers that are naturalized in railroad ballast and in other ruderal sites near railroads. Railroad lines, as well as highways, probably serve as corridors that facilitate the spread of this adventive species.

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